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State of New Jersey

DEPARTMENT OF LAW AND PUBLIC SAFETY

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MEMORANDUM OF MEETING

On August 16, 1979, a meeting was held in the offices of the U.S. Environmental Protection Agency, Region II in Edison, New Jersey, concerning technical and expert testimony to be given in connection with State of New Jersey Department of Transportation v. PSC Resources, Inc., et als.. The following persons were in attendance:

John T. Bolen, Principal Environmental Engineer, HMDC
Thomas J. Germine, Deputy Attorney General
Michael V. Polito, Chief of Emergency Response and Inspection Branch, U.S.E.P.A. Region II
Ed Weissman, Project Manager, Roy F. Weston, Inc.

The major emphasis of the day's discussion centered on two objectives:

1. Using available information, including EPA analysis of Sample No. 37182, taken from an open valve discharging from the Diamond Head lagoon in June, 1976, as well as sample analyses performed by DOT, Haller Laboratories, and Carborundum Company on samples taken from the Oil Lake, and chemical analyses of Diamond Head's sludge and feed stock contained in Jack Swain's report, to develop a chemical and physical correspondence between the Lake contents and the Diamond Head effluent.

2. Using available monitoring well data and topographical charts of the MSLA landfill, to be supplemented by surface water observations and groundwater testing to be performed during our

inspection of the area on August 24, 1979, to demonstrate that any possible contribution attributable to leaching from the landfill into the Lake would not correspond qualitatively or quantatively to the contents of the Lake, as indicated by the aforementioned analyses.

The meeting commenced with Ed Weissman's observation that, while the State appeared to have a strong qualitative case, in terms of proving a pattern of discharges from Diamond Head into the Lake, it would now be necessary to develop an estimate of the total quantity of discharge attributable to Diamond Head before it would be possible to calculate the damage to State property caused by Diamond Head. Moreover, a quantative analyses would be needed to counter the anticipated defense that other sources were responsible for the pollution of the Lake.

John Bolan next provided some historical background on the Oil Lake removal and some insight into the relationship between the Lake and the surrounding landfill. Nine million gallons of liquid, consisting of oil and oil/water emulsion, was pumped out of the Lake in 1977 and was taken to the Long Island plant of Newtown Refining Corp., where the oil content was recovered. Bolan surmised that Newtown would have to have done some chemical analysis of the Lake liquids in order to process them and suggested that records of this analysis be subpoenaed.

Bolan stated that, in addition of the 9 million gallons of liquid, 5 to 6 million cubic yards of sludge were removed from the Lake by mudwaving and backfilling with compressed sand. Moreover, in the course of the Route 280 construction, an "underground Lake" of oil contaminated groundwater has been found extending from the eastern limits of the right-of-way to Frank's Creek on the west. Germine asked whether this area of oil contamination would indicate sources other than Diamond Head. Bolan replied that it would not, because the highly compressed layer of silty clays underlying the landfill (which forms a wedge to the south and east of the right-of-way) would effectively act as a dike to the south and east, while Harrison Avenue would act as a dike to the north. (Question: would the former landfill adjacent to Diamond Head on the west likewise have acted as a dike?) Therefore, the observed distribution of ground water contamination would be consistent with Diamond Head as the single source, with the natural groundwater movement to the east. Mike Polito noted that the smaller pond bordering Harrison Avenue to the east of the Lake showed no oil contamination, which would be expected if landfill leachate were the source.

Germine then questioned Bolan on the history of oil dumping in the landfill. Bolan said that prior to 1971, when HMDC issued a regulation banning liquid water from the landfill, liquid waste was being dumped in this site. The Solid Waste Disposal Act (Chapter 8) had permitted up to 30% liquid to be mixed with solid garbage. There remains a technical question as to absorbent and retentive capacities of landfills. Polito stated that the question of whether this liquid will eventually leach out of a landfill is central to the Kin-Buc litigation, and suggested that we could draw upon some of the technical data developed for that case.

Polito also noted that since the landfill appeared cliffed on all side and has no channelization (referring to 1976 topo map), with uniform dumping one would expect that if oil leaked out, it would have been evident in surface waters around the entire perimeter, not just in the Oil Lake. Bolan stated that HMDC had monitored the condition of surface waters around the landfill and also had regular inspections of recharge basins. (Bolan noted that these basins would have trapped any leachate from the landfill before it reached the Oil Lake). He indicated that he would locate these inspection reports. Weissman observed that, since the landfill was effectively diked on two sides, any oil dumping should still be evident in the groundwater, and that groundwater sampling might be worthwhile. It was concluded that after Weissman's inspection of Diamond Head on August 24th, Bolan would accompany us into the landfill to inspect the surface waters and possibly sample the groundwater. Weissman may bring a solid waste expert from Weston for this inspection.

Bolan suggested that landfill personnel could provide factual testimony as to the absence of oil in the ponds south of the landfill. Bolan also indicated that HMDC had topographical maps of the landfill going back to 1963, and that topo maps of the Lake and surrounding areas going back to 1963 could be obtained from Robinson Aerial Surveys.

Next, we discussed the correspondence between the EPA sample of Diamond Head effluent and the available samples of the Lake contents. Germine pointed out that Haller sample of the "Free Oil" layer of the Lake indicated 68% water and sediment, 32% oil, as compared to the EPA sample showing 41% oil and 59% water. Germine also noted that the DOT analysis of the oil layer of the Lake showed the high lead and zinc content characteristic of waste oil, and that the Carborundum analysis of the Lake's bottom sludge shows a heavy metal distribution very similar to the analysis of Diamond Head's caustic sludge reported by Jack Swain. Germine

suggested that these facts could be used to: (a) link the origin of Lake pollutants to Diamond Head, and (b) eliminate possible landfill sources, e.g. bottoms from tank cleaning.

Germine added, however, that this effort would be complicated by the possibility that defendant can prove that its own sludge was being dumped in the landfill. Polito noted that, even if this were so, the proportions of metals indicated in the Carborundum analysis could not be attributed to leaching from the landfill unless there were an underground stream. Moreover, if metals entered the Lake through the groundwater, one would not expect a large lead content, since lead is virtually insoluble. One would also expect to see zinc, which is highly soluble, in greater proportion than lead, which is not shown by the Carborundum and DOT samples. Polito suggested that a water chemist should look at this question.

After lunch, we met with B.F. Dudenbostel ("Dude"), Chief of the EPA Chemistry Section, who interpreted the analysis report on Sample Number 37172 (taken from an open valve emptying from the Diamond Head lagoon into the Oil Lake). The first chart shows gas chromatogram data, with the lower scale indicating mass spectrum number. Dude said the mass distribution indicated a heavy oil like lube oil. The next chart shows a mass spectral search for paraffins (alkanes), and indicates a high paraffin content characteristic of petroleum. The next chart analyses benzene derivatives (present in gasoline), and shows little present in this sample. The remaining charts show the typical paraffin spectra. Dude concluded from re-examining this report that the sample was a heavy residual oil, possibly used crankcase. (Also, the absence of carbonyl bands showed it was definitely not a vegetable oil).

Dude examined the Haller analysis of the Lake's oil layer and stated that it is "compatible" with the EPA analysis, although he could not say they were the same substance.

It was agreed that arrangements would be made for an inspection of the landfill on August 24th in order to pursue these investigations further.

Thomas J. Germine
Deputy Attorney General

TJG:hd
cc: Michael V. Polito
John T. Bolan
Ed Weissman
Larry Lin